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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,643	06/13/2007	Noriaki Fujii	060533	6041

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EXAMINER	
ESHETE, ZELALEM	

ART UNIT	PAPER NUMBER
3748	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/586,643	FUJII ET AL.	
	Examiner	Art Unit	
	Zelalem Eshete	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *5-7* is/are allowed.

6)☒ Claim(s) *1-3* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This Office action is in response to the amendment filed on 6/11/2008.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1,2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mathley et al. (6,354,255).

Regarding claim 1: Methley discloses an engine comprising: a cylinder head forming a portion of an engine body (figure 1); an intake valve operating device having an intake camshaft (22); an intake valve driven for opening and closing operations by the intake valve operating device, the intake valve being provided in the cylinder head (12); an exhaust valve operating device having an exhaust camshaft (16); and an exhaust valve driven for opening and closing operations by the exhaust valve operating device, the exhaust valve being provided in the cylinder head (14), characterized in that the intake camshaft is placed higher in position than the exhaust camshaft by increasing

the distance between the intake camshaft and a combustion chamber along a cylinder axis of the engine body relative to the distance between the exhaust camshaft and the combustion chamber (figure 1).

Mathley fails to show in the figure the direction of rotation of the intake camshaft.

However, Mathley's teaching has to be either of clock wise or counter clock wise rotation of the intake camshaft.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try either one of the available choices since there are a finite number of identified, predictable solutions (clockwise and counter clock wise), with a reasonable expectation of success.

Regarding claim 2: Mathley discloses the intake valve operating device has a variable lift mechanism capable of changing the valve opening lift amount of the intake valve, and the exhaust valve operating device has the exhaust camshaft and an exhaust rocker arm linked and connected to the exhaust valve so as to swing by following the exhaust camshaft (figure 1).

3. Claims 1,2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. (6,425,357).

Regarding claim 1: Shimizu discloses an engine comprising: a cylinder head forming a portion of an engine body (figure 2); an intake valve operating device having an intake camshaft (45); an intake valve driven for opening and closing operations by the intake valve operating device, the intake valve being provided in the cylinder head (12a); an exhaust valve operating device having an exhaust camshaft (46); and an exhaust valve driven for opening and closing operations by the exhaust valve operating device, the exhaust valve being provided in the cylinder head (16a), characterized in that the intake camshaft is placed higher in position than the exhaust camshaft by increasing the distance between the intake camshaft and a combustion chamber along a cylinder axis of the engine body relative to the distance between the exhaust camshaft and the combustion chamber (figure 2).

Shimizu fails to show in the figure the direction of rotation of the intake camshaft.

However, Shimizu's teaching has to be either of clock wise or counter clock wise rotation of the intake camshaft.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to try either one of the available choices since there are a finite number of identified, predictable solutions (clockwise and counter clock wise), with a reasonable expectation of success.

Regarding claim 2: Shimizu discloses the intake valve operating device has a variable lift mechanism capable of changing the valve opening lift amount of the intake

valve, and the exhaust valve operating device has the exhaust camshaft and an exhaust rocker arm linked and connected to the exhaust valve so as to swing by following the exhaust camshaft (figure 2).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mathley in view of JP(11,107855).

Mathley discloses the claimed invention as recited above; however, fails to disclose the engine body is placed in an attitude such that the cylinder axis is inclined toward the exhaust valve operating device.

However, JP'855 teaches the engine body is placed in an attitude such that the cylinder axis is inclined toward the exhaust valve operating device (see figures 3,6).

It would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify the system of Mathley by providing engine arrangement as taught by JP'855 in order to adapt existing engine configurations. It also would have been obvious to one having ordinary skill in the art to implement the system of Mathley to well known V-type engines and slant engines.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mathley in view of JP(5,39707).

Mathley discloses the claimed invention as recited above; however, fails to disclose the engine body is placed in an attitude such that the cylinder axis is inclined toward the exhaust valve operating device.

However, JP'707 teaches the engine body is placed in an attitude such that the cylinder axis is inclined toward the exhaust valve operating device (see figures 2,4).

It would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify the system of Mathley by providing engine arrangement as taught by JP'707 in order to adapt existing engine configurations. It also would have been obvious to one having ordinary skill in the art to implement the system of Mathley to well known V-type engines and slant engines.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu in view of JP(5,39707).

Shimizu discloses the claimed invention as recited above; however, fails to disclose the engine body is placed in an attitude such that the cylinder axis is inclined toward the exhaust valve operating device.

However, JP'707 teaches the engine body is placed in an attitude such that the cylinder axis is inclined toward the exhaust valve operating device (see figures 2,4).

It would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify the system of Shimizu by providing engine arrangement as taught by JP'707 in order to adapt existing engine configurations. It also

would have been obvious to one having ordinary skill in the art to implement the system of Shimizu to well known V-type engines and slant engines.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu in view of JP(11,107855).

Shimizu discloses the claimed invention as recited above; however, fails to disclose the engine body is placed in an attitude such that the cylinder axis is inclined toward the exhaust valve operating device.

However, JP'855 teaches the engine body is placed in an attitude such that the cylinder axis is inclined toward the exhaust valve operating device (see figures 3,6).

It would have been obvious to one having an ordinary skill in the art at the time the invention was made to modify the system of Shimizu by providing engine arrangement as taught by JP'855 in order to adapt existing engine configurations. It also would have been obvious to one having ordinary skill in the art to implement the system of Shimizu to well known V-type engines and slant engines.

Allowable Subject Matter

8. Claims 5-7 are allowed.

Response to Arguments

9. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zelalem Eshete whose telephone number is (571) 272-4860. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Zelalem Eshete/
Primary Examiner, Art Unit 3748